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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/645,471	08/24/2000	Masaya Yukinobu	000996	4323
38834	7590	09/29/2004	EXAMINER	
WESTERMAN, HATTORI, DANIELS & ADRIAN, LLP 1250 CONNECTICUT AVENUE, NW SUITE 700 WASHINGTON, DC 20036			KRUER, KEVIN R	
			ART UNIT	PAPER NUMBER
			1773	

DATE MAILED: 09/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/645,471

Applicant(s)

YUKINOBU ET AL.

Examiner

Kevin R Kruer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 13-20 and 22-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 13-20 and 22-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 August 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

2. The drawings filed August 24, 2000 are acceptable.

Specification

3. The amended title is acceptable.
4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. Re-writing dependent claims 19, 22, and 25 in independent format has overcome the rejection of said claims under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim Rejections - 35 USC § 102

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
7. Claims 13-15, 25, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Engle et al (US 5,888,290). Engle teaches a composition that is made by

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combining a hydrosol, mixed sol, or and organosol with a coupling agent and allowing them to react (col 4, lines 17+). Preferably, the sol comprises colloidal silica (col 2, line 25) that may further comprise alumina sol, zinconia sol, or titania sol (col 2, lines 20+). The coupling agent may comprise any of a variety of mercaptosilanes (col 3, lines 66+).

For example, Engle teaches an isopropanol solution consisting of a colloidal silica and mercaptopropyltrimethoxysilane (see Example 42). The solid content of the suspension is 29%.

Herein, the silica is understood to read on the inorganic binder of claim 13 and the mercaptosilanes are understood to read on the "functional group containing compound" of claims 13 and 15.

The examiner notes that the limitation "for forming a transparent coating layer" is an intended use limitation that does not further limit the claim.

Claim Rejections - 35 USC § 103

8. Claims 16-20 and 22-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP11-203943 (herein referred to as "Yukinobu") in view of WO99-01766 (herein referred to as Buining).

Yukinobu teaches gold-coated silver particles with a mean particle diameter of 1-100nm dispersed in a solvent (claim 7). The particles comprise 5-100 parts by weight of gold per 100 parts by weight of silver (claim 2)-which equates to 4-50wt% of gold. The examiner notes that 50wt% reads on the claimed endpoint of claims 17, 26, and 27. The solution may further comprise silica sol as a binder (claims 11 and 12). The

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solutions are useful for producing transparent conductive materials for front plates of displays (paragraph 0001).

Yukinobu does not teach that the composition should comprise a functional group compound having at least one functional group selected from mercapto- groups, sulfide groups, and polysulfide groups. However, Buining teaches a solution comprising metal particles and a mercaptosilane residue bound to said metal particles (abstract). The metal particle has a particle size of 5nm or lower and comprise gold or silver (abstract). The mercaptosilane stabilizes the metal particle in a manner that resembles the role of the surfactant (page 12, lines 17+). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the mercaptosilane to the solution taught in Yukinobu. The motivation for doing so would have been to stabilize the metal particles in solution.

Response to Arguments

Applicant's arguments with respect to claims 13-20 and 22-28 have been considered but are moot in view of the new ground(s) of rejection.

The action has been taken non-final because the examiner misinterpreted the weight percentage limitations of claims 19 and 22 in the Office Action mailed April 29, 2004.

Applicant argues that the dispersion described in Engle is merely a composition used as a precursor for obtaining the "polymer grafted inorganic micro-particles." Applicant further argues that the composition of claim 13 is intended to be coated over a corresponding layer and comes into chemical action with the underlayer, thus imparting

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advantages such as improved conductivity, improved film strength, more improved weather resistance, and the like. While the examiner concedes that the composition taught in Engle has a different intended use, the examiner maintains the position that the composition taught in Engle reads on the presently claimed composition. The intended use of the claimed composition does not patentably distinguish the composition from the composition taught in Engle.

With respect to the rejection based upon Yukinobu in view of Buining, Applicant argues that it is difficult to obtain a strong bond between the gold micro-particles or gold containing noble metal micro-particles and a binder matrix such as silicon oxide. This problem is eliminated, according to applicant, by coating the coating of claim 16 over a transparent substrate; drying said coating; and over coating said layer with a liquid coating for forming a transparent conductive layer containing an inorganic binder. The binder seeps into the holes of the network structure of the gold micro-particle or gold-containing noble metal micro-particles that has been preformed by using the coating liquid of claim 16. The binder on heat treatment becomes a binder matrix that contains as its main component the binder and at least one functional group selected from mercapto groups, sulfide groups, and polysulfide groups resulting in the improved film strength and weather resistance. While applicant's arguments are noted, the examiner notes that the claims are directed to a composition, not a coated substrate. Thus, the manner in which the claimed composition is intended to be used does not patentably distinguish the composition from the composition rendered obvious by the prior art. In response to applicant's arguments, the examiner notes that a recitation of the intended

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use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

Applicant further argues that the materials utilized in the Buining reference are different from the claimed "gold micro-particles or gold containing noble metal micro-particles." The examiner agrees, but notes that Buining was never relied upon to teach the claimed particles. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant further argues that Buining does not teach the significant advantages that can be achieved by combining the gold micro-particles or gold containing micro-particles with the functional group containing compound. The advantages to which applicant refers are believed to be improved conductivity, film strength, and weather resistance. Said "film strength" improvement is not unexpected since Buining teaches that the functional groups will form covalent links to inorganic binders (page 16, lines 10+). Furthermore, the improved "weather resistance" of the coated particles is taught in Buining (page 21, lines 26+). With regard to the improved conductivity, Buining teaches that the silane treatment will keep the particles at a constant distance from one

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another which is essential for controlled conductivity (page 16, lines 20+). Thus, applicant's results are not considered unexpected.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin R Kruer whose telephone number is 571-272-1510. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 571-272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kevin R. Kruer
Patent Examiner-Art Unit 1773